

Notice of Allowability

Application No.

09/749,989

Examiner

Nelson D. Hernandez

Applicant(s)

FOSSUM ET AL.

Art Unit

2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to _____.
2. ☒ The allowed claim(s) is/are 1-33.
3. ☒ The drawings filed on 26 December 2000 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

Terminal Disclaimer

1. The terminal disclaimer filed on November 3, 2004 disclaiming the terminal portion of any patent granted on this application, which would extend beyond the expiration date of Patent No. 6,166,768 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Allowable Subject Matter

2. Claims 1-33 are allowed.
3. The following is a statement of reasons for the indication of allowable subject matter:

Regarding **claims 1, 21 and 30**, the main reason for indication of allowable subject matter is because the prior art fails to teach or reasonably suggest the photodetector having an output transistor whose gate is connected to said photodetector electrode to form a floating gate and at least one charge coupled device stage, said charge coupled device section configured and operable to transfer charge through said charge coupled device stage from said photodetector portion of said substrate to a drain of said output transistor during a reset operation and to produce an electrical signal indicative of said photo-generated charge.

Mendis et al. ("A 128 X 128 CMOS active pixel image sensor for highly integrated imaging systems", Electron Devices Meeting, 1993. Technical Digest; International) discloses an imaging device comprising: a focal plane array of a pixel cells (See fig. 3), each one of said pixel cells comprising: a photodetector portion (Fig. 1) formed in said

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substrate and photodetector electrode (See fig. 1: PG) overlying said photodetector, said photodetector operable to accumulate photo-generated charge in said photodetector portion in response to incident radiation, and a charge coupled device section (See figs. 1 and 2) formed on said substrate adjacent said photodetector (Pages 583-585). However, Mendis et al. fails to teach or reasonably suggest the photodetector having an output transistor whose gate is connected to said photodetector electrode to form a floating gate and at least one charge coupled device stage, said charge coupled device section configured and operable to transfer charge through said charge coupled device stage from said photodetector portion of said substrate to a drain of said output transistor during a reset operation and to produce an electrical signal indicative of said photo-generated charge.

Regarding **claim 27**, the main reason for indication of allowable subject matter is because the prior art fails to teach or reasonably suggest a barrier gate formed on said substrate adjacent said underlying portion, a capacitor having a terminal connected to both said gate of said pixel transistor to make said gate of said pixel transistor a floating gate, and wherein said barrier gate is operable to transfer said photo-generated charge from said underlying portion said substrate under said photodetector electrode to said drain of said pixel transistor which produces an electrical signal having a signal component indicative of said photo-generated charge.

Mendis et al. ("A 128 X 128 CMOS active pixel image sensor for highly integrated imaging systems", Electron Devices Meeting, 1993. Technical Digest; International) discloses an imaging device (See fig. 3) comprising: a monolithic semiconductor

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integrated circuit substrate (Fig. 3); a focal plane array of pixel cells (Figs. 1-3) formed on said substrate by an integrated circuit process (See fig. 1) that is compatible with complementary metal oxide semiconductor (CMOS) process, each one of said pixel cells comprising, a photodetector electrode (Fig. 1: PG) overlying said substrate and operable to accumulate photo-generated charge in an underlying portion of said substrate, a pixel transistor formed on said substrate and configured to have a drain adjacent said barrier gate, a gate and a source (Pages 583-585). However, Mendis et al. fails to teach or reasonably suggest a barrier gate formed on said substrate adjacent said underlying portion, a capacitor having a terminal connected to both said gate of said pixel transistor to make said gate of said pixel transistor a floating gate, and wherein said barrier gate is operable to transfer said photo-generated charge from said underlying portion said substrate under said photodetector electrode to said drain of said pixel transistor which produces an electrical signal having a signal component indicative of said photo-generated charge.

Contact


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nelson D. Hernandez whose telephone number is (571) 272-7311. The examiner can normally be reached on 8:30 A.M. to 6:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy R. Garber can be reached on (571) 272-7308. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nelson D. Hernandez
Examiner
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NDHH
March 1, 2005


WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
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